RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

San Diego natural history society.

Nov. 2. — The following officers were elected: president, Dr. G. W. Barnes; vice-president, Joseph Winchester; recording secretary, E. W. Hendrick; corresponding secretary, Rosa Smith; treasurer, C. J. Fox; librarian, Mrs. Z. R. Cronyn; curator, Dr. D. Cave; directors, D. Cleveland, G. W. Barnes, C. J. Fox, E. W. Morse, J. G. Capron.

The following papers were read. Historical notice of Pinus Torreyana; by C. C. Parry. — In the spring of 1850, when connected with the Mexican boundary survey, my attention was first called to a peculiar species of pine growing on the Pacific coast, at the mouth of the Soledad valley, San Diego county, by a casual inquiry from Dr. J. L. LeConte, then staying in San Diego, asking what pine it was, growing near the ocean beach at that locality. Not having any specimens to show, he simply mentioned at the time its dense cones, and its long, stout leaves (five in a sheath). Not long after, an opportunity offered to the writer for a personal investigation, having been ordered by Major W. H. Emory to make a geological examination of the reported coal-deposits on the ocean bluff above Soledad. From the notes and collections there made, a description was drawn up, dedicating this well-marked new species to an honored friend and instructor both of Dr. LeConte and the writer; viz., Pinus Torreyana, Parry. Of the few specimens then collected, a single cone and bunch was sent to Dr. Torrey to be figured for the Mexican boundary report. While there, it fell under the notice of some inquisitive botanist, who extracted some of the loose seeds, which were planted, but by some inadvertence were mixed with another three-leaved species. When growing, the two different kinds became confounded, and it was inferred that the present discoverer was mistaken in regarding this species as five-leaved. Prof. Parlatore, the elaborator of Coniferae in de Candolle's 'Prodromus,' added to this confusion by ignoring the name first proposed, and substituting that of Pinus lophosperma. Subsequently, frequent collectors have visited this locality, bearing away to the remotest portions of the world seed of this pine, which, as far as is known, is exclusively confined to a coast-line of not more than four miles, lying between San Dieguito and about a mile below Soledad, and extending scarcely a mile inland. The bulk of the tree-growth is here mainly confined to a series of high broken cliffs and deeply indented ravines on the bold headlands overlooking the sea south of Soledad valley, and within the corporate limits of the town of San Diego. Here, within a radius of not more than half a mile, this singular species may be seen to the best advantage, clinging to the face of crumbling yellowish sandstone, or shooting up in more graceful forms its scant foliage in the shelter of the deep ravines, bathed with frequent sea-fog. One of the finest specimens seen reaches a height of nearly fifty feet, and shows a trunk eighteen inches in diameter at base.

The chair was instructed to appoint a committee of three (to be named hereafter), to report and act upon such measures as may be deemed best for the preservation of the remnant of the Pinus Torreyana at Soledad, treated of in the communication of Dr. Parry.

Additions to our flora and fauna; by C. R. Orcutt. — The writer stated, that, since the last annual meeting, over a dozen discoveries have been made in species of plants indigenous to this section, while many more have been discovered unknown hitherto in California.

Notes upon spiders; by Rosa Smith. — Zilla rosa, which I discovered at San Diego less than a year ago, is the commonest orb-weaver in San Francisco and vicinity, spinning its delicate snare on trees, bushes, and fences about the city, at Golden Gate Park, and at the Cliff House. Even inside the walls of the California academy of sciences, I have seen its lovely web, accompanied by silken cocoons of its eggs. This spider is easily known by the free radius in the snare, — 'a good wedge cut out of the pie,' Dr. McCook expresses it, — which is peculiar to the genus Zilla. At Aptos, near Santa Cruz, I secured an Epeira, and cocoon of eggs and young spiders, which have revealed some curious facts in regard to insect parasites. Of these Dr. McCook writes, "One interesting thing about the Epeira atrata cocoon is, that it is strangely infested by parasitic and other enemies, no less than four. There were first a number of small reddish ants alive, probably a species of Solenopsis, who no doubt were feeding upon the eggs and *débris;* second, several larvae of Dermestidae, probably Attagenus pellio. These were creeping into the silky interior at will, though some of them were ensconced within the empty cells of some ichneumon. Next I found alive a very small ichneumon fly. I have never yet seen quite such a 'happy family' within the bounds of a spider's egg-nest. The spiderlings seemed to be contented, and indifferent to the presence of these intruders." A few days later, Dr. McCook sent more information, as follows: "Since writing you, I find from Mr. Cresson that the larger ichneumon is a Pezomachus; and the small one, as I conjectured, a chalcid of some sort, which is parasitic upon Pezomachus. As Pezomachus is parasitic upon spiders' eggs, their presence within the cocoon is thus accounted for. By the way, there is a yet minuter chalcid that is parasitic upon the chalcid, that is parasitic upon the Pezomachus, that is parasitic upon the eggs of Epeira atrata and other spiders."

Natural science association of Staten Island.

Dec. 8. — Mr. Hollick gave an account of the recent discoveries of fossil leaves at Tottenville. There are three distinct kinds of rock containing these fossils, — a hard red or gray ferruginous sandstone, a soft gray sandstone, and a peculiar conglomerate composed almost wholly of vegetable remains cemented together with what is apparently limonite or sesquioxide of iron. In the soft gray

sandstone the remains are not yet destroyed, but are in the form of carbon or lignite. In the other rocks the vegetable tissue has almost entirely disappeared, and only the impressions remain. The rocks are found in blocks or fragments, none of them greater than a foot square, scattered along the beach, mostly at the base of the bluff, which is composed of drift. From our present knowledge, it is not possible to decide whether they were torn up from an outcrop below high-water mark and cast upon the beach, or washed out from the base of the bluff: they no doubt belong to the cretaceous, although our present proofs are not yet sufficient to state this to a certainty.

A note was read from Dr. Britton of Columbia college, in which he stated that the occurrence of similar fossiliferous sandstones on the beach near Glen Cove, Long Island, and vicinity, had been known for some time. There they are found in precisely the same position as at Tottenville, and are associated with extensive beds of fire-clay, kaoline, etc. The Tottenville station is not immediately on these clays, but they are found near by in several directions, notably at Kreischerville. That the two localities mark outcrops of the same geological formation, and probably approximately of the same strata, is almost certain. The physical structure of the Glen Cove series is exactly parallel to that of certain of the clay beds of Middlesex county, N.J., which are well known to belong to the cretaceous epoch. In the absence of sufficient fossil evidence, we cannot state with absolute certainty that the two deposits are equivalent; but there is little doubt that this will ultimately be proven, and that the New Jersey and Staten Island clays, kaolines, lignites, etc., find another and their most northern outcrop on the north shore of Long Island, at or near Glen Cove.

The exact parallelism between our Staten Island specimens and those from Glen Cove, continued Mr. Hollick, can be seen at a glance: in fact, they would be indistinguishable but for the labels, with the exception of the leafy conglomerate before described, which does not seem to be represented elsewhere; it is possibly peculiar to Staten Island.

In determining the genera and species of fossil plants, we have to depend mostly upon the veining of the leaves, which is not by any means so satisfactory as we could wish. Genera can be determined with comparative accuracy. Thus we have no doubt that one of our Tottenville fossils is a willow, though what particular species, it is impossible to say; another is undoubtedly an evergreen, allied to our juniper or arborvitae. The larger specimens are probably willows, viburnums, and sour gums. There are also a few fragments with parallel veins, — no doubt, belonging to the grasses, — a small fruit or nut, and a piece of what appears to be an equisetum or horse-tail rush. These, with other indistinguishable fragments, complete our list.

Cambridge entomological club.

Dec. 14. — Mrs. A. K. Dimmock showed a collection representing stages of thirty-eight species of insects which are found upon Betula alba, the white birch, which will be given later in *Psyche*.

Mr. G. Dimmock showed the two halves of a split wing of Attacus cecropia, in which the two layers of the wing had been separated by the following mode. The wing from a specimen that had never been dried is put first into seventy per cent alcohol, then into absolute alcohol, and from the latter, after a few days' immersion, into turpentine. After remaining a day or two in turpentine, the specimen is plunged suddenly into hot water, when the conversion of the turpentine into vapor between the two layers of the wings so far separates these layers that they can be easily parted and mounted in the usual way as miscroscopical preparations on a slide. This is an easy way of demonstrating the sac-like nature of the wings of insects.

Dr. H. A. Hagen showed preparations to illustrate organs of undetermined function, found on the larvae of Gomphidae, Libellulidae, and Aeschnidae, but not as yet found on Agrionidae, which he believes to be traces of segmental organs. The organs in question are little cavities or invaginations of the epidermis between the segments, one on each side of the median ventral line, on one, two, or three abdominal segments, according to the family to which the larva belongs.

Ottawa microscopical society.

Dec. 18. — Mr. Henry M. Ami read a paper on the use of the microscope in determining fossils, with especial reference to the Monticuliporidae. Late microscopic investigations proved that the more minute organisms found in our rocks were both deserving and requiring such careful investigations; for geologists had been led into erroneous ideas regarding the particular horizon, and range in geological time, of certain species of these fossils from the mere cursory examination given them. Later paleontologists, pursuing their researches in a more scientific manner, had recourse to thin sections of these Monticuliporidae, or fossil Polyzoa, by means of which the true external and internal structures of the zoarium or skeleton of the genera and species belonging to this family were satisfactorily ascertained.

The work of foundation and means devised by Dr. Nicholson (at one time a professor in one of our Canadian universities) inaugurated a new era in the study of these interesting forms. The mode of procedure in preparing thin sections of these fossils was then considered and explained. The different kinds — tangential, longitudinal, transverse, and axial sections — were described, and illustrations of them exhibited in charcoal drawings of some of the common species found about Ottawa city, — Prasopora Selwyni Nicholson, Batostoma ottawaense Foord, and Monotrypella trentonensis Nicholson; the various points exhibited in these sections — such as the large and smaller tubes; cystoid, curved, and straight diaphragm or floors; the spiniform tubuli, etc. — were then described, showing how minutely and accurately their structures and affinities can by this means be detected.

There was still a rich and wide field open for investigation in the study of the Monticuliporidae; and care should be taken first to ascertain with the new and more scientific means the true relations and affinities of the species described previous to 1881.

Mr. Whiteaves exhibited a choice series of recent Polyzoa for comparison with the fossils described in the paper.

Ottawa field-naturalists' club.

Dec. 20. — Mr. James Fletcher read a paper entitled 'Notes on the Flora ottawaensis, with special reference to the introduced plants,' which was explanatory of the lists of plants hitherto published by the club, and in which the non-indigenous species are not indicated. Mr. Fletcher first defined the district from which the plants had been collected, and which lies within a circle of twelve miles radius. He then noted certain of the more interesting of rare or introduced species, and presented lists tabulating the latter plants under the headings of 'Aggressive species,' 'Species able to perpetuate themselves indefinitely,' 'Species dying out after short periods,' etc. An animated discussion ensued, confined principally to the conditions affecting introduced plants, and the spreading of certain species.

Philosophical society of Washington: Mathematical section.

Dec. 19. — Mr. M. H. Doolittle gave a paper on the rejection of doubtful observations, in which observing-errors were sharply divided into two classes, — those resulting from blunders in recording, pointing on wrong objects, neglect of essential precautions in instrumental adjustment, etc.; and those resulting from an unusual accumulation of similar elements of error. The latter class, because by their magnitude in one direction they indicate that the remaining observations are in error in the opposite direction, he proposed to call *instructive* errors, and claimed that the larger they were the more instructive, and the greater the necessity of retaining them. In practice, however, the best rule with suspected observations is to reject them when they exceed the limit of error possible to the 'instructive' class, and when they fall within it to assign a weight proportional to the chance that the error belongs to the latter class, and not the former. As the law of distribution of the former class of errors (if any such law exist) is very different from the recognized law of the latter class, these questions cannot be decided by computation with a 'criterion,' but must be left to the judgment.

Prof. A. Hall gave as a general result of the debate of this vexed question by Peirce, Airy, De Morgan, Stone, Glaisher, Chauvenet, Gould, Winlock, and others, that *every one can devise a criterion that suits himself, but it will not please other people.* He strongly opposed using such machinery in the discussion of observations as eliminated the knowledge and judgment of the investigator, and giving to results a fictitious accuracy by any sweeping rejection of discordant data.

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

Geological survey.

Topographical field-work. — Mr. H. M. Wilson, in charge of one of the topographical parties in Prof. A. H. Thompson's Wingate division, surveyed, during the season of 1883, about ten thousand square miles in north-western New Mexico and north-eastern Arizona. The area covered by his work lies between parallels of latitude 36° and 37°, and extends from meridian 109° to 111°. He also worked some smaller detached areas outside of the limits thus indicated. This region has hitherto remained a *terra incognita*, partly on account of its aridity and barren condition, and partly on account of the difficulty of traversing it. So little has been known of it, that within the area surveyed by Mr. Wilson a small mountain range has been indicated as occupying two places on the same map. On the engineer's map of 1879 it is called Calabesa Mountains in the northern place, and Squash Mountains in the southern; and, on the land-office map for 1882, both are indicated without names. Mr. Wilson's work proves that they are one and the same, occupying a position very close to that assigned to the Squash Mountains.

On the 11th of September Mr. Wilson and one of his men made the ascent of Navajo Mountain (called by the Indians Nat-sîs-aú), and they are probably the first white men who have ever stood upon its summit. Navajo Mountain lies on or near the line between Utah and Arizona, and is a dome-shaped mass rising about four thousand feet above the general level of the surrounding country, and sixty-five hundred feet above the beds of the San Juan and Colorado rivers, which are close to its base, the former on the north, and the latter on the west. Its elevation above sea-level is ten thousand four hundred feet. It slopes abruptly, especially on the east, to a plateau of six to seven thousand feet, which extends south-eastward for fifteen or twenty miles to the cañon where Mr. Wilson left his pack-train in camp. This was on a trail that leads to Fort Defiance, *viâ* the north side of the Mesa de la Vaca and the valley of the Rio de Chelly. Another trail leads southward to Mo-eu-kap-i (a Mormon settlement) and to Oraybe and the other Moqui villages. From a point a few miles south of the Navajo Mountain, a third trail leads westward to Lee's Ferry, on the Colorado River. Mr. Wilson thinks there is also a trail leading to the mountain from the north-west. He says all the trails in this section are exceedingly rough and difficult to travel, on account of the numerous cañons, of five hundred to a thousand feet in depth, which are cut into the red sandstones (triassic?) that form the